

I n s i d e		January 30, 2004 Volume 34 Number 2	
News Briefs	2	Live from Mars!	3
Special Events Calendar	2	Letters	4
New NASA Official Visits	2	Retirees, Classifieds	4

Two for two!!

Opportunity
matches twin
rover's perfect
landing on
Mars

By Guy Webster and
Mark Whalen



They did it again!

The excitement and sheer euphoria that took over JPL earlier in the month following the Spirit rover's landing repeated itself in the late evening of Jan. 24, as the second Mars Exploration Rover, Opportunity, hit paydirt with a successful landing in Meridiani Planum, one of the smoothest, flattest places on Mars.

Opportunity returned the first pictures of its landing site early Sunday, Jan. 25, about four hours after reaching Mars. The pictures indicate that the spacecraft sits in a shallow crater about 20 meters (66 feet) across that lies near a much larger crater. Scientists value such crater locations as a way to see what's beneath the surface without needing to dig.

The post-landing news conference in von Kármán Auditorium turned into a raucous celebration when the Entry, Descent and Landing team entered and whooped the crowd of onlookers into a frenzy.

"For the last three weeks, we have been observing exploration exactly as it has happened—with joy, glory and sometimes frustration," noted JPL Director Dr. Charles Elachi. "The success of the Mars team was earned the old-fashioned way—they were excellent, determined and worked very hard."

MER Project Manager Pete Theisinger called the occasion "historic and monumental. This has been a stupendous adventure for all of us."

On Jan. 26, Opportunity's second day on Mars, key science instruments passed health tests and the rover made important steps in communicating directly with Earth. Scientists marveled at a high-resolution color "postcard" of Opportunity's surroundings. The mosaic of 24 frames



The interior of a crater surrounding Opportunity at Meridiani Planum on Mars as seen from the rover's panoramic camera. Above: Entry, Descent and Landing Manager Rob Manning (facing camera) is embraced by Deputy Project Manager Richard Cook, as EDL Guidance and Control Chief Miguel San Martin applauds.

from the panoramic camera shows details from the edge of the lander to the distant horizon beyond the rim of the rover's small home crater.

"We're looking out across a pretty spectacular landscape," said Dr. Jim Bell of Cornell University, Ithaca, N.Y., lead scientist for the panoramic cameras on Spirit and Opportunity. "It's going to be a wonderful area for geologists to explore with the rover."

New pictures from Opportunity revealed Jan. 27 showed thin layers in rocks just a stone's throw from the lander platform where the rover temporarily sits.

Geologists said that the layers—some no thicker than a finger—indicate the rocks likely originated either from sediments carried by water or wind, or from falling volcanic ash. "We should be able to distinguish between those two hypotheses," said Dr. Andrew Knoll of Harvard University, a member of the science team for both rovers. If the rocks are sedimentary, water is a more likely source than wind, he said.

The prime goal for both rovers is to explore their landing areas for clues in the rocks and soil about whether those areas ever had watery environments that could possibly have sustained life.

Controllers at JPL planned to tell Opportunity on Jan. 27 to start standing up from the crouched and folded posture in which it traveled to Mars.

"We're going to lift the entire rover, then the front wheels will be turned out," said Mission Manager Jim Erickson of JPL. Several more days of activities are still ahead before the rover will be ready to drive off the lander.

Cheney salutes Mars team

By Mark Whalen

Vice President
Dick Cheney shows off
a Mars Exploration
Rover T-shirt
he received as a gift
from JPL.



Photo by Steve Banskín / JPL Photolab

On the same day President Bush outlined a new vision for space exploration for the nation, Vice President Dick Cheney stopped by JPL to congratulate the Lab on its success with the Mars Exploration Rover mission.

Cheney's Jan. 21 visit included a briefing in Building 264's mission operations area by Jennifer Trosper, mission manager for surface operations. He then addressed a crowd in the mall, backed by about 100 members of the MER team.

"You're capturing the nation's imagination with the Mars Exploration Rovers," Cheney said. "The Spirit mission is showing your ingenuity in its absolute highest form. Each of the hundreds of people here who worked on this project can be enormously proud of the mission's success, and you can know that people all across the country, indeed around the

world, are thrilled and inspired by your work."

Cheney noted Bush's vision for "a second great age" of space exploration. "Our goals are aggressive: to complete the International Space Station by 2010; to send manned flight beyond Earth's orbit in 2014; to return to the moon by 2020, and to use our presence on the moon as a platform for missions to Mars and beyond.

"These aims are ambitious, they're difficult and they're very demanding. The effort will be repaid many times over in scientific advancement, useful new technologies, the discovery of resources on Earth and beyond, and the discovery of more about ourselves."

Cheney told the gathering that the nation's journeys into space will pose countless challenges, "yet we will embark on these missions with confidence, be-

cause we've chosen exactly the right people to do the job. The president and I appreciate the outstanding work performed by everyone at JPL; you're using your talent and your dedication for the benefit of your country and all mankind. America is proud to lead the world into space and the American people are proud of all of you."

The vice president received several gifts from JPL: a Mars Exploration Rover T-shirt, a rover model, and a "Mars watch," which keeps time in Martian days of 24 hours, 39 1/2 minutes.

JPL Director Dr. Charles Elachi thanked Cheney for the visit. "I want to tell you how privileged we feel that this country has entrusted us in exploring the solar system over the last 40 years, how honored we are by your presence here and by the encouragement you are giving us, and how uplifted we are by the president's exploration initiative."

News Briefs

SRTM data create new maps

A new topographic data set from NASA and the National Geospatial Intelligence Agency will allow exploration of the vast reaches of most of Europe, Asia and numerous islands in the Indian and Pacific Oceans, from the comfort of home.

Gathered in just 10 days by the JPL-managed Shuttle Radar Topography Mission in February 2000, the new digital elevation data set showcases some of Earth's most diverse, mysterious and extreme topography. Much of it previously had been very poorly mapped due to persistent cloud cover or inaccessible terrain. The new data being released comprise about 40 percent of the entire mission data set.

The new images are available on the JPL Planetary Photojournal at <http://photojournal.jpl.nasa.gov>. Search for catalog numbers PIA03398, PIA03399, PIA04950 and PIA04951. "People around the world will benefit from the release of the mission's Europe and Asia topographic data sets because they greatly extend our knowledge of this immense region that also is home to most of Earth's citizens," said DR. JOHN LA-BRECQUE, manager of NASA's Solid Earth and Natural Hazards Program.

Thompson wins international honor

SUZANNE THOMPSON, a staff engineer in JPL's Reliability Engineering Section (513), received a Gold Medal Award for her combined presentation and research paper at the 10th International Space Conference of Pacific-Basin Societies in Tokyo in December.

The conference was organized by the Japanese Rocket Society in collaboration with the American Astronautical Society and the Chinese Society of Astronautics, and provided a forum for space decision-makers, experts, engineers and technicians to exchange ideas and experiences in

space technology and discuss prospects for the future of space development and its applications in the Pacific Basin.

Thompson's entry in the conference's Masters Level competition, "Kansas Universities' Technology Evaluation Satellite (KUTESat) Sensing of Radiation Energies, Fluxes, and Exposure Geometry in the Space Environment Using a radiation sensing field effect transistor (RadFET) Array," received the conference's top award. She was the only American at the conference to receive top honors in the Master's competition. Her outstanding work was jointly recognized by the presidents of the JRS, AAS and CSA, from whom she received a certificate and plaque.

Blood drive in February

The next JPL/Red Cross blood drive will be held in von Kármán Auditorium Feb. 17, from 10 a.m. to 4 p.m., and Feb. 18, from 7 a.m. to 1 p.m.

The Red Cross has developed a new automated message system for confidential donor sign ups at <http://www.givelife.org/index.cfm?hcl=JPL>. Enter your e-mail address, birth date and sponsor code "JPL," then click on login. If you experience problems accessing the site, sign up at Occupational Health Services home page at http://eis/medical/blood_form.html.

Advance signup sheets are also available at Occupational Health Services, Building 310-202, prior to the blood drive. For last-minute signups, or to change your appointment, please call the Red Cross at (626) 960-6956, ext. 225.

For more information, visit <http://www.redcross.org/services/biomed/blood/supply/tse.html>.

Occupational Health Services notes that during the two-day drive in November, the Red Cross collected 168 pints of blood, from which 504 lives will benefit.

New NASA official visits Lab



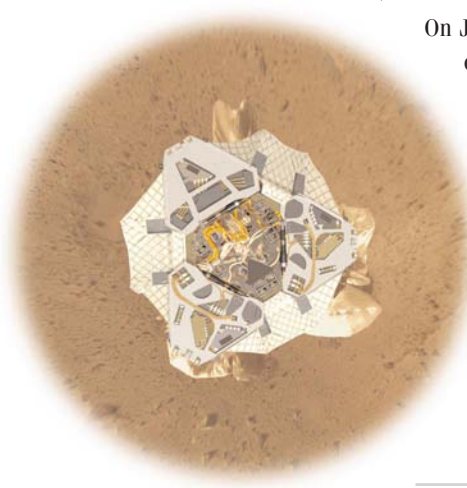
Bob Brown / JPL Photolab

Craig Steidle, right, is shown around the ion propulsion lab by Ira Katz, supervisor of the Advanced Propulsion Technology Group.

Craig Steidle, NASA's newly appointed Associate Administrator, Office of Exploration Systems, paid a visit to JPL on Jan. 23. He met with JPL's Executive Council, toured a number of Lab facilities and received briefings on the Lab's current and future missions and technology development. JPL Director Dr. Charles Elachi also discussed with Steidle the support the Lab can provide to the new enterprise.

The Office of Exploration Systems was established to set priorities and direct the identification, development and validation of exploration systems and related technologies. The creation of the new enterprise was part of the recently announced restructuring of the offices within NASA Headquarters.

Spirit rover's condition improves



Engineers working on Spirit have determined that the high-gain antenna on that rover is likely in working order despite earlier indications of a possible problem. They are continuing to take information out of Spirit's flash memory. Results from a testbed simulator of the rover's electronics supported the diagnosis of a problem with management of the flash memory, reported Mission Manager Jennifer Trosper. Flash memory is a type common in many electronic products, such as digital cameras, for storing information even when the power is off.

On Jan. 26, during its 22nd day on Mars, the Spirit rover obeyed commands for transmitting information that helped engineers set a strategy for fixing problems with the rover's computer memory. "We have a patient in rehab, and we're nursing her back to health," Trosper said. She added that a high-gain antenna session was scheduled for Wednesday, Jan. 28, which represents "a significant step forward for Spirit." "I think we've got a patient that's well on the way to recovery," said Project Manager Pete Theisinger.

Special Events Calendar

Ongoing Support Groups

Alcoholics Anonymous—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

Caregivers Support Group—Meets the first Thursday of the month at noon in Building 167-111 (the Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

Codependents Anonymous—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

Gay, Lesbian and Bisexual Group—Meets the first Friday and third Thursday of the month at noon in Building 111-117. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

Parents Group for Children With Special Needs—Meets the second Thursday of the month at noon in Building 167-111 (the Wellness Place).

Working Parents Support Group—Meets the third Thursday of the month at noon in Building 167-111. For more information, call the Employee Assistance Program at ext. 4-3680.

Saturday, January 31

Preservation Hall Jazz Band—This ensemble will perform New Orleans-style jazz at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$25, \$21 and \$17; high school age and younger, \$10. For more information, call (626) 395-4652.

Chamber Music—Linda Wang will perform violin at 2:30 p.m. in Caltech's Beckman Auditorium. For more information, call (626) 395-4652.

Tuesday, February 3

"A Random Walk Through My Literary Life"—Author Herman Wouk will deliver a free lecture at 8 p.m. in Caltech's Beckman Auditorium. For more information, call (626) 395-4652.

JPL Gamers Club—Meeting at noon in Building 301-227.

JPL Genealogy Club—Meeting at noon in Building 301-271.

Wednesday, February 4

Associated Retirees of JPL/Caltech—Meeting at 10 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

Dr. Ed Stone Lecture—Dr. Gene Serabyn of the Astrophysics Research Element will present "Setting the Stage for the Terrestrial Planet Finder Mission: Recent Progress in Nulling Interferometry" at 11:30 a.m. in Building 180-101.

Thursday, February 5

JPL Gun Club—Meeting at noon in Building 183-328.

Friday, February 6

Celtic Music and Dance—Leahy, an ensemble of nine Canadian siblings, will perform at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$29, \$25 and \$21; high school age and younger, \$10. For more information, call (626) 395-4652.

Saturday, February 7

Gross Me Out!—At 2 p.m. in Caltech's Beckman Auditorium, Della Lisi, aka Sally Snot, explains bodily functions in a game show format. Tickets are \$12 for adults, \$7 for youth. This event is part of the Saturdays at 2:00 series of family events. For more information, call (626) 395-4652.

Tuesday, February 10

JPL Stamp Club—Meeting at noon in Building 183-328.

Wednesday, February 11

JPL Amateur Radio Club—Meeting at noon in Building 238-543.

JPL Toastmasters Club—Meeting at 5 p.m. in the 167 conference room. Call Debbi Llata at ext. 3-3690 for information.

"String Theory: Past, Present and Future"—Caltech physics professor Dr. John Schwarz will lecture at 8 p.m. in Caltech's Beckman Auditorium. Free admission. For more information, call (626) 395-4652.

Lab ceremony honors King



Carol Lachata / JPL Photolab

MLK Steering Committee chair Laura White addresses the gathering honoring King.

By Rima Bedevian

JPL hosted its 9th annual celebration to commemorate the life and achievements of Dr. Martin Luther King, Jr., on Jan. 21.

This year's event was sponsored by the Advisory Committee on Minority Affairs and the African American Resource Team and coordinated by the MLK 2004 Steering Committee. "Dr. Martin Luther King Jr.'s legacy and dream will continue to live on as the JPL community continues the commitment in helping, encouraging, returning and overcoming," said Steering Committee chair Laura White of Section 2690. "I want to thank the steering committee for all its help and commitment."

The room was filled to capacity, as JPLers and visitors assembled to hear keynote speaker Rev. Kerwin Manning, pastor of the Pasadena Church of God. His address was titled "The Making of a Hero."

"Dr. Martin Luther King Jr. was an ordinary man with an extraordinary calling," Manning said. "He was a social activist who walked the walk. We need to see what our calling is and fulfill it to be extraordinary." Manning also emphasized the significance of acknowledging one's own capabilities and working towards making a difference. "All it takes for injustice to prevail is for good men to do nothing," he said.

Other highlights of the festivities included a display of artifacts representing the diversity of cultures at JPL, a video presentation of comments from JPLers on Dr. King's dream, recital of a poem written by ACMA chair Tom May called "Hope to See the Day," and the exceptional voice of 11-year-old Teira Church. Church, who won the National Gospel Showcase, sang the Black National Anthem and one of the popular songs from her gospel CD. "I think Martin Luther King, Jr. is a great person and to be a great person you have to be chosen by God," she said. "The new generation of kids should strive to keep the 'dream' alive."

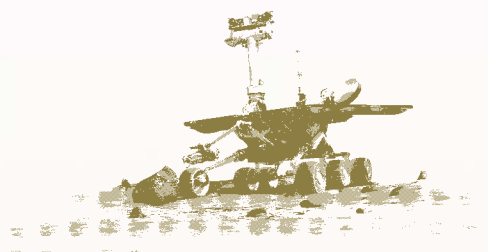
LIVE

from mars!

A selection of pictures taken last Saturday evening

and into Sunday morning, as Mars team members,

officials and guests react to the rover's landing.



Bill Ingalls/NASA



Bob Brown/JPL Photolab

▲ **California Congressman** Adam Schiff, left, chats with Sean O'Keefe, Dr. Ed Weiler, Dr. Charles Elachi and Dr. Firouz Naderi.



Tom Wynne/JPL Photolab



Dutch Slagter/JPL Photolab



Bob Brown/JPL Photolab

◀ **Two for Two!** Celebrating Opportunity's landing are JPL Director Dr. Charles Elachi, NASA Administrator Sean O'Keefe, MER Project Manager Pete Theisinger, NASA Associate Administrator Dr. Ed Weiler, Dr. Orlando Figueroa, director of NASA's Mars Exploration Program Office, and JPL's Mars Exploration Program Office Director Dr. Firouz Naderi (upper right).



Tom Wynne/JPL Photolab

◀ **Entry, Descent and Landing** Manager Rob Manning, left, explains operations to California Congressman Adam Schiff, Governor Arnold Schwarzenegger and Texas Congressman John Culbertson. Looking on at left is Wayne Lee, chief engineer for entry, descent and landing.



Tom Wynne/JPL Photolab

◀ **Applauding the successful landing,** former Vice President Al Gore joins Dr. Alice Huang and Dr. David Baltimore.

◀ **Checking for the rover's first images** are Chris Voorhees, left, Joe Melko and Lori Shiraishi. Standing behind them is Jessica Collisson.

◀ **Celebrating Opportunity's landing,** John Callas and Claudia DeLuna join MER team members in Building 264.

◀ **Last weekend JPL dedicated** a plaque and American flag in Building 230 in memory of U.S. Army Lt. Todd Bryant, killed in action in Iraq in October. With JPL Director Dr. Charles Elachi are Bryant's parents, Linda and Larry. Todd's parents have both worked for JPL, and Larry is currently employed as an operations engineer.

Universe

is back to its normal schedule. The next issue will come out on Friday, Feb. 13. Ad deadline is Monday, Feb. 2.

JPL’S ONLINE NEWS SOURCE



Classified ads will be available the day before Universe is published at <http://dailyplanet>

View this and previous issues of Universe at

<http://universe.jpl.nasa.gov>

E-mail us at

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Notice to Advertisers

Advertising is available for JPL and Caltech employees, contractors and retirees and their families. No more than two ads of up to 60 words each will be published for each advertiser. Items may be combined within one submission. Ads must be submitted via e-mail to universe@jpl.nasa.gov and are due at 2 p.m. on the Monday after publication for the following issue.

All bousing and vehicle advertisements require that the qualifying person(s) placing the ad be listed as an owner on the ownership documents.

Letters

My family and I would like to thank all my friends and co-workers for their kind and caring thoughts after the recent passing of my father. The plant you sent will be a living memorial for me. Thank you for your support.
Yvonne James-Bivins, Section 980

I wish to thank all my co-workers and friends at JPL and NASA for the best wishes extended to me on my retirement. I am especially grateful for the excellent support provided by past and present employees of Section 662/282 and the other Sections of the Facilities Division including contractor employees.
Vaji Nasoordeen

Retirees

The following JPL employees retired in January:

David Fulton, 38 years, Section 274; Gaylord Hammerwold, 24 years, Section 319; Shirley Whittington, 14 years, Section 315; Araham Nasoordeen, 13 years, Section 282.

Classifieds

For Sale

ACCESS ROUTER, Linksys OINT wireless, practically new, in box, w/4-port switch, model no. BEFW11S4, ver. 2, \$50. 626/791-5376.

BABY ITEMS: crib, wood, made in Italy, incl. mattr., height adjustable, exc. cond., \$150/obo; car seat, front-facing, up to 40 lbs., made by Century, good cond., \$25/obo. 626/791-6101.

BABY ITEMS: breast pump, Medela, pump-in-style, new, used twice, paid \$300, sell for \$175; swing, Graco, paid \$60, sell \$30. 626/574-7431.

BED, Cometa, queen, cherry wood, Italian design, new, paid \$1,300, will sell for \$900, see at <http://www.lofgrens.com/Bedrooms/JESBed.html>. 244-8822.

BED, Ikea, queen size, black steel frame w/large head and footboard, like new, pics. avail., \$75/obo. 352-9856.

BED FRAME, antique craftsman, twin, walnut head & footboard, \$125; desks, 2, small, 1940s, hardwood, with 5 drawers incl. file drawer, \$45 each; chair, papasan, with green cushion, \$25. 626/797-6824.

CARD SHUFFLER, Johnson, collectible item, stands 6" handle high, and 9" by 6," flanges and handle inclusive, \$35; DIET TAPES, Jenny Craig, set of 14, \$40. 790-3899.

COMPUTER, Graphite iMac, 600 MHz G3, 15" CRT, 512 MB SDRAM, 30 GB HD, and slot-loading CD-RW, includes Mac OS X 10.3 Panther, OS 9, + extra software, like-new cond., includes all orig. software disks, manuals + packaging, \$495. 626/398-1855.

COMPUTER, Dell Inspiron 2500 notebook, 14.1 XGA TFT display, 700 MHz Pentium III, 20 GB hard drive, 128 MB RAM, 4MB video card, 24X CD-ROM, 8X DVD combo drive, 3.5 floppy drive, modem/Ethernet, 59 Whr lithium ion 8-cell battery, AC adapter, Windows XP Profes'n'l OS, Microsoft Office XP, access, Excel, PowerPoint & Word, Quicken 2002, Microsoft Works Suite 2001, Norton antivirus, exc. cond., \$400. 249-6786.

CRIB/CHANGING TABLE SET, like new, light brown finish, made by Basset, \$175/obo. 626/446-1140.

DRUM SET with double pedal base, \$250/obo. 626/447-4734.

DRYER, Kenmore, 90 series, electric, 2 yrs. old, great cond., \$200/obo. 661/816-4188.

FIREWOOD, dry 22" to 12" logs, splits & kindling, drive-to, \$1/cu. ft. 248-8030, 24/7.

FOOD WARMERS, electric, 1 serving cart Hotable incl. 1 hotspot & lower shelf, 32 L x 17 W x 31 H, 1 party server 9 x 15, both w/adjustable thermostats, 2 warmers ea. 6 x 6, Salton Hotrays 1975, perfect, all work fine, \$35/obo. 909/593-4046 or vivdaves@earthlink.net, in La Verne.

GOLF CLUB SET, Ram TX2, 4 woods, 2-PW Irons, \$30. 957-4770.

HOCKEY TICKETS, Kings, season ticket holder selling individual games, \$100 for 2 tickets in the Lower Bowl. 626/852-0821.

KITCHEN TABLE SET, country style, painted birch, 3' x 3', 4 chairs, sturdy, exc. cond., \$70. 626/798-5855.

LIFT TICKETS, 2, Brian Head, Utah, non-holiday, \$50/obo. 897-1203.

MISC: cell phone, Samsung VR205, photo phone w/accessories, in orig. mfg. packaging, never used, \$100/obo; ent. center, cherry wood, beveled glass doors, lots of storage, like-new cond., \$100/obo. 701-0061.

MISC: snowboard, "Lift Assist," \$10; diamond ring, 10KYG, \$90; tires, 4, P285-60 R16, \$100; gas grill, Char-Broil Master Flame, w/cover, \$75; cell phone, Nokia 5190, \$30; CD stands, \$10/ea.; ski boots, ladies, Rossingol, sz. 8-8.5, \$40. 897-1203. MISC: stereo console, am/fm, phonograph, Magnavox, mid '70s, honey colored, make offer; floor lamp, white; table lamps, 2; electric blanket, queen; headboard, full to queen size; dresser, 6 drawer, with tall mirror; nightstand, 2 drawer, walnut color, oak, exc. cond., \$200/obo. 626/798-4821, Nancy.

MISC: dining table, smoked glass top, 72" x 42," with 6 upholstered fabric chairs, exc. cond., \$149/obo; sofa/loveseat, vg cond., cloth fabric, light color, \$199/obo; bike, 26", men's, 15 sp., helmet, gd cond., \$20;

camcorder, Panasonic digital, PVDV203, 6 mini DV tapes; camera, digital, still, SD card, 700x zoom, 1 lb., new in box, never used, full warranty, \$379. 909/592-2279.

MISC: audio tape recorder, Sony digital, model PCM-M1, exc. cond., orig. box, portable unit, very light, smaller than adult hand, pd, \$800, sell \$550; dresser, solid, pine, 8 drawer, off-white, \$250. 323/344-7163.

MISC: TV, Mitsubishi, 27," color, thin tube with oak console, modern-looking, comes w/ Hi-Fi surround sound & remote control, paid \$1,200, sell for \$350; TV, Panasonic, 27," color, digital surround sound w/built-in DVD player and Hi-Fi, VHS and remote control, paid \$600, sacrifice \$450. 323/344-7163.

MISC: laptop computer, Mac Powerbook G3, OS 9.2, 333MHz, 576 MB, \$400; Sony discman, w/ am/fm, recharg. battery, \$50; tuner/amplifier, Onkyo TX-840, 60W/channel, \$150; answering machine/ cordless phone, digital, Sony, 900 MHz, \$40; speakers, Acoustic Research, pair, \$50; golf bag, Calloway pro-tour, black, \$40; putter, Ping J-blade, \$40. 213/810-8801.

MISC: tricycle, girl's, exc. cond., hardly used, \$25; dog house, med., gd cond., \$30; dog pillows, sm. \$10, lg. \$15; bird cages, assorted, used, \$15; cottage, girl's, Little Tykes, hardly used, kept indoors, orig. cond., with all accessories, orig. \$300, sell for \$200; air cond., HEPA, + filters, \$75. 626/798-6248.

MISC: equipment box, Marine's steel, locking, 12 x 6 x 7", \$6; military service machete in scabbard, 23," \$6; meat tongs, lg. restaurant type, 15" long, \$4; audio oscillator, electronic, \$10. 626/793-1895.

MISC: turkey roasting pan, self-basting, with cover, 15 x 11 x 7.5," \$8; cooking kettle, covered aluminum, 5 qt., like new, \$9; vegetable dish with handles; 8," covered, pale yellow, \$9. 626/793-1895, Albert.

MOVING SALE: microwave, Panasonic, 1,100W, \$50; TV, 20," Panasonic, VHS and antenna, \$70; vacuum cleaner, 12 amps, Kenmore, attachments, power-mate, \$70; color printer, Epson, 740 Stylus, \$60; cell phone, Sprint PCS, Samsung SCH-3500, dual-band + charger, \$15; all items bought new less than 5 years ago. 626/564-8483, Chris.

MOVING SALE: sofa w/ottomans; 2 upholstered chairs; dining table, teak, w/custom pad; sideboard & 6 chairs; coffee table, lg., dark oak, w/leaded glass; end/lamp tables; organ, Lowrey chord; oak tables, oiled, w/s-ofa table & bookcases; pedestal table, round, oak, w/5 armchairs; washer & elec. dryer; bedroom armoire/chest, tall, oak; brass headboard. 248-2480.

PIANO, Yamaha C3 Grand, 6 ft., polished ebony, exc. cond., MSRP \$32,495, sacrifice, \$11,000; PORT REPLICATOR for IBM Thinkpad, works with T20, T21, A20, A21, or X, R series, like new, \$85; CONTROLLER CARD, Ultra ATA, w/ cable, fits into 32-bit PCI 2.1 or 2.2 expansion slot on motherboard, brand new, \$20; INCOME TAX SOFTWARE, J.K. Lasser's 2004, brand new, \$10. 790-3899.

PLAY TICKETS: 2, Puccini's and Baz Luhrman's "La Boheme," Sun, Feb. 15, 2 p.m., row D in balcony at Ahmanson Theater, \$55/seat. 626/791-2519.

PROJECTOR, 35mm slides, uses straight trays. 248-9544.

REFRIGERATOR, GE Profile, 24 cu. ft., white, side-by-side, built-in style, water & ice in door, 6 yrs. old, exc. cond., very quiet, 70.25" h x 36" w x 24" d, \$500. 549-1330. SKI BOOTS, sizes 6, 7, and 8, used once or twice, \$25. 626/794-0081, Bonnie.

SOFA BED, queen size, very comfortable to sit and sleep, bed hardly used, \$200. 626/577-6638, Suzanne.

TREES: red banana plant, 5' tall, \$60/obo; Ficus, 10' tall, braided, in 30" plastic pot, \$250/obo; CERAMIC BOWL, gray, 2" diameter w/planted geraniums, \$40/obo. 626/791-6101.

WASHER/DRYER, Maytag, older model, works great, \$100 for pair, must be able to pick up from Laguna Beach. 626/646-1937.

Vehicles/Accessories

'96 ACURA Integra GSR, 4 door, 4 cyl., 5 spd., ABS, a/c, p/s, p/b, p/w, pdl., full pwr., tilt steering wheel, am/fm/stereo/cassette/CD, premium sound, loaded, sunroof, alloy wheels, new tires, 1 owner, extra clean, exc. cond., looks and runs great, must see, \$8,200. 626/283-5722.

AUTO TEST SET, electronic, includes an analog ignition oscilloscope that displays both primary/secondary parade and raster waveforms + a full function analyzer with timing light all on a chrome roll-away cart, \$500; full set of proto crescent wrenches, new, sizes 4", 6", 8", 10" and 12," \$38. 249-6071.

BOSTON WHALER boat, 11 ft., 8 hp, Honda outboard, included is a Trail-Rite boat trailer, an Eagle fish finder, new, still in box, and misc. items such as anchor, life vests etc., not used more than 50 hrs., \$4,500. 661/273-0564.

BRAKE BLEEDER KIT, services most brake systems, built in heavy duty safety valve & pressure regulator gage, unit has a 1.5 gal. capacity, includes adapters for Ford and GM + VW and Honda, exc. cond., sells new for over \$400, will sell for \$100. 249-6071.

'94 BUICK Regal, only 69K mi., very clean, exc. mechanical cond., \$4,100. 244-5489, anytime.

'93 CHEVROLET Suburban 2500, 2x4, 350, V8, exc. cond., red, street scene front grill, well-maintained and low mileage, a/c, power doors & windows, wood trim dash, custom front seat sheepskin covers, running boards, new tires with Weld wheels and Flowmaster exhaust, \$13,500/obo. 626/359-7666.

'80 CHEVY El Camino, 350cc, automatic, air conditioning, new paint, tires, transmission, brakes, power steering pump, rebuilt carb., runs great, \$4,500. 310/795-7670, Patrick.

'97 DODGE Caravan, sport model, 110K mi., well-maintained, good cond., \$5,500/obo. 249-3115, Armik.

'00 FORD Focus LX, 2.0 L, 5 spd., 5 door, red, low mileage (25K mi.), new tires, still under warranty, 3 years/40K, like new, \$7,500/obo. 626/564-8483, Chris.

'98 FORD Explorer Sport, automatic, 49K mi., light blue, 2WD, power windows, keyless entry, alarm, 2 door, very clean, extended warranty, all records, exc. maint., \$8,500/obo. 626/943-9779.

'92 FORD Explorer SUV, Eddie Bauer, 4.0L,

V6, auto, 5 door, red, 2WD, 120K mi., new tires, new transmission, new brakes, new radiator, loaded, very well maintained, \$3,000/obo. 626/564-8483, Chris.

'96 GMC Z71 Sierra 1500 SLE, 5.7 Vortec motor, 4 x 4, silver, tow pkg., a/c, pwr. windows/locks/brakes/steering/driver side seat, cruise control, am/fm/ cassette/CD, gray cloth interior, bedliner, sliding rear window, front seats are separate w/ ctr console, alloy wheels, tinted side windows, orig. owner, 92K mi., clean, regularly serviced, \$13,800/obo. 626/797-1189 or 626/841-9030.

'70 HARLEY DAVIDSON Shovelhead/Chopper, all S&S motor parts, rebuilt motor, extra parts, very fast, must see, \$10,800. 244-8822.

'01 HONDA Civic, 2 door, only 1,010 mi., silver, always garaged, like new, in Burbank, \$13,000/obo. 848-2922, days only please.

'97 HONDA Civic LX, 4 door sedan, great cond., only 63,500 mi., automatic, a/c, dual front airbags, am/fm, Pioneer CD player, cruise control, pwr. locks/windows/steering, alarm, tinted windows, blue w/gray interior, \$7,500/obo. 626/287-7869.

'88 HONDA Accord sedan DX, 110K mi., orig. owner, XM satellite radio/cass., a/c, automatic, exc. cond., \$2,000. 776-9578, Len.

'94 JAGUAR XJ 6, exc. cond., 95K mi., maroon, 4 dr., with beige leather interior, must sell, make offer. 310/451-5919.

'92 LEXUS ES300, 88K mi., gd cond., \$7,000; reason for selling: purchased van to accommodate growing family. 790-1279, eves.

'88 NISSAN Sentra GXE, 4 dr., only 95K mi., 5-speed, manual, good cond., new brakes, original owner, \$1,600/obo. 626/485-3900.

'96 OLDSMOBILE Cutlass Supreme, metallic green, beige interior, exc. cond., loaded, 114K mi., \$4,100. 634-4772, Carl.

'99 SUBARU Outback Wagon AWD, immaculate, 10,700 mi., 2.5 L, 4 cyl., auto, a/c, PS, PW, power locks, cruise, am/fm/CD/cassette, tilt, abs, roof rack, alloy wheels, red, \$13,200, Lancaster area. 661/723-0356 or 661/297-0219.

'99 TOYOTA Avalon XL, 4 dr., automatic, gray/sage w/tan cloth interior, a/c, alarm, CD/cass., power locks/seats/windows, very clean, 51,500 mi., \$12,800/obo. 248-4003.

'98 TOYOTA Sienna minivan, V6 LE, 194 HP, 63K mi., light blue, exc. cond., dual a/c, 12-disc CD changer, dual sliding doors, 1 owner, under extended warranty, \$14,600. 909/592-2279.

'92 TOYOTA Camry LE, light blue, 4 cyl., great cond. inside and out, alloy wheels, moonroof, good tires, original owner, 123K mi., \$3,850/obo. 249-6786.

'99 VOLKSWAGEN GTI, VR6, 5 speed, vg cond., \$10,000/obo. 952-6181.

'96 VOLKSWAGEN Jetta GL, manual, 5 speed, with moonroof, champagne, 90K mi., good cond., \$5,000. 626/222-4979.

'71 VOLKSWAGEN Beetle, smog test no longer req., new bat., brakes & seat covers, 100K mi. 248-8030, 24/7.

WIND DEFLECTOR, Wind Wedge, set up for Ford pickup towing 5th wheel trailer, deflects air around trailer frontal area, exc. cond., \$40/obo. 626/963-5727.

'92 YAMAHA Virano, 750 cc MC, exc. cond., \$3,450. 951-3566.

Free

CATS: Two friendly adults need a warm home ASAP; abandoned by previous homeowners, but super affectionate, healthy, good with kids. 626/644-1973 or <http://www.ugcs.caltech.edu/~gonzo/cats.html>.

DOG named Coaly, blk., lab mix, 6 yrs. old, very smart & loyal, needs love & gd. home ASAP. 661/210-5590, Tina VanVeen, cell.

FILL DIRT, clean, 10 cu. yds. avail., you haul as little or as much as you like, near Los Robles/Jackson, Pas. 626/791-3103, dtask6@its.caltex.edu.

JARS for baby food, glass, great for crafts. 714/903-8888.

KITTEN, tiger-striped, 4 mo., good w/other animals, really cute, rescued, dropper + bottle fed, sweet and playful. 249-4561.

Wanted

GREETING CARDS/CALENDARS for art projects, Christmas, used. 661/775-9070 or balleysteresa20@hotmail.com.

COMPUTER, laptop with Pentium 4 processor. 310/475-2346, after 7:30 p.m.

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present, for personal use. 790-8523, Marc Rayman.

TUTOR for Business Calculus, 3 to 5 days per week, mid-January to mid-June, 3.5 miles from JPL. 790-7916, Avo.

VOLLEYBALL PLAYERS, coed, no beginners please, Tuesday nights 8 to 10 p.m. at Eagle Rock High School, \$4/nt. 956-1744, Barbara.

Lost and Found

Found: HAIR CLIP, silver metal, in parking lot behind building 125, Ext. 4-0949.

For Rent

ALTADENA house, nicely appointed Spanish in one of nicest areas, hardwd floors, 3 bd., 2 ba., beamed ceilings, big yard, brick patio, stove, washer/dryer incl., beautiful wooded setting, quiet, \$2,250. 626/483-7700.

ALTADENA furnished garage apt., newly remodeled w/new appliances, 1 bd., 600 sq. ft., util. paid, quiet neighborhood, short-term lease preferred, non-smoker, no pets, \$875. 626/791-0317.

ALTADENA, rm. in house, nice neighborhood, avail. late March/early April, min. from JPL, 3 mi., furn., including linen, laundry, parking, kitchen, patio, \$500 + sec. dep. 626/798-4821.

ALTADENA house to share with a prof. JPLer, 1 bd. in a 2-bd. house, 1/2 mi. from JPL, quiet neighborhood, cul-de-sac, \$600 + 1/2 utilities, avail. March 1. 626/222-6943.

ARCADIA condo, 2 bd., 2 ba., partially furn., a/c, secured complex, pool and washing facility, \$1,700 + util. + \$1,500 security deposit, 1200 E. Huntington Drive at Michillinda. 626/794-6606, Sandy Harlan.

BURBANK home, charming 2 bd., 1 ba., hardwood floors, central heat and air, fireplace, laundry hookups, 20 min. to JPL,

gardener included, \$1,750. 249-9364, Jan. LA CANADA house, 4 bd., 4 ba., FR, DR, LR, very large yard, pool. 248-6064, Mike.

LA CRESCENTA house, 3 bd., 2 ba., above Foothill, priv. backyard, mature trees, no pets/smoking, avail. mid-Feb., \$2,375. 626/351-6032.

MONTEREY HILLS condo, 2 bd., 1 ba., 3rd flr./private end unit w/view, fireplace, hardwood flrs. & carpet, cent. air/heat, dish-washer, stove, laundry rm. w/washer & dryer hookups, secure ground-level parking, close to 110 fwy., 15 min./JPL, \$1,200, cable/trash/gas/water included. 626/296-9073.

MONTROSE apt., 1 bd., 1 ba., new paint & carpet, outdoor fire pit, very private & secure, \$725/no pets. 248-9110.

MONTROSE apartment, large, 1 bd., 10 minutes from JPL, \$775. 626/445-0884, John. PASADENA apt., furn. 2 bd., 1.5 ba., 2-story townhome-style, dishwasher, central a/c, re-frig. & stove, laundry room, patio, parking, close to Caltech & JPL, \$1,150-\$1,175 + util. 626/577-3060, ext. 14, Dennis.

PASADENA apt. to share, furn., 3 bd., 3 ba., townhome style, patio, cent. a/c, laundry, close to Caltech & JPL, \$625 + 1/3 utilities, great for co-ops. 626/429-3677 or bettyrs@earthlink.net.

PASADENA condo, good area, within 1 mi. of Old Town, Paseo, Caltech, close to mass transit, 1 bd., 1.5 ba., 2 car parking, \$1,300, sec. dep. 909/598-9734.

PASADENA apt., 2 bd., 1 ba., fireplace, stove, reffrig,r priv. patio, garage, exc. location in 4-unit complex, nr. Sierra Madre Blvd. & Calif. streets, laundry facil., gd closet & cabinet space, outdoor lighting, water/trash/gardner pd, avail. Feb. 1, \$1,225. 805/967-7725.

PASADENA house, in nice neighborhood, 3 bd., 2 ba., living room, dining room, \$2,400. 626/833-3757.

PASADENA, downtown condo off Lake Ave., 2 bd., 2 ba., new construction, never been lived in, hardwood floors, new appliances, granite counter tops, 4th floor, mountain view, elevator, underground parking w/ remote, \$1,650, 12-mo. lease preferred, but month to month OK. 909/599-9506, Scott.

PASADENA condo, lg., immac., in centrally located complex, 2 bd. + office, 2 ba., absolutely fully furn., ideal for visiting staff, 2 parking spaces, 1 mi. from Caltech, JPL owner, flexible lease, \$2,500/meg. 626/685-1138.

SUNLAND home, 2 bd., 1 ba., one bd. for rent, 300 sq. ft. of storage in garage, roomie shares driveway, laundry, kitchen, bathroom, linen closet, pets OK, qtr.-acre lot, utilities incl., phone separate, non-smoker, house completely remodeled, \$600. 951-9744 or 653-2575, Shannon, or itsypoo@yahoo.com.

SYLMAR home, spacious, new, 5 bd., 2.5 ba., views, rent to own, 2,800 sq. ft., \$10K credit toward purchase after one year, 20 mi. to JPL, \$2,395. 626/584-6526, Fred.

TUJUNGA, 7.5 mi. from JPL, furnished/unfurn. room in 3-bd. home, off-st. parking, fireplace, patio, gas grill, kitchen/laundry privileges, pets negotiable, \$550 + 1/2 utilities + \$200 dep. 951-1053, Jennifer.

WEST COVINA house, nice 2 bd., 2 ba., with office or bonus room, hardwood floors, lg. family room, central heat/air, laundry hookup, water filtration throughout home, 2 patios, detached garage, spa and lots of fruit trees, gardener included, \$1,600. 626/393-9043 or 393-6327, Renee.

Real Estate

ARIZONA, Seligman, mobile home, 2 bd., 2 ba., on 40 acres at 5,300 ft., great views and weather, fully furnished, solar and wind power, many extras, \$65,000. 702/228-7170.

COLORADO, 10 + level acres near Rio Grande, NM border, two adjacent 5-acre lots on St. Hwy 248, will sell one or both for \$1K/acre/obo. 626/254-1550.

GLENDALe condo, near Maple Park, modern, 3 bd., 2.5 ba., 1,755 sq. ft., in center of complex, little st. noise, lg. living/din. room, bright modern kitchen w/pantry, 2 big balconies, fireplace, central a/c, laminate floors in living & bedrooms, new carpet &